MultiVOIP™

Voice/Fax over IP Networks

Standalone Voice/IP Gateway
Model MVP400

Proprietary Mode

Quick Start Guide

MultiTech® Systems

Quick Start Guide

82099351 Revision B

MultiVOIP (Model MVP400)

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Record of Revisions

Revision	Description
A (10/07/01)	Manual released. Covers software version 3.01.
B (01/28/02)	Remove MultiVOIP Manager from splash screen.

Patents

This Product is covered by one or more of the following U.S. Patent Numbers: ***6151333, 5757801, 5682386***. Other Patents Pending.

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Introduction

Welcome to Multi-Tech's new standalone Voice/IP Gateway which allows analog voice and fax communication over an IP network. The MultiVOIP model number is MVP400 and is a four-channel unit. Multi-Tech's new voice/fax over IP gateway technology allows voice and fax communication to ride, with no additional expense, over your existing IP network, which has traditionally been data-only. To access this free voice and fax communication, all you have to do is connect your MultiVOIP to your telephone equipment, and then to your existing Ethernet LAN. Once configured, the MultiVOIP then allows voice and fax to travel down the same path as your traditional data communications.

The MVP400 is designed with four voice/fax channels (which offer three voice/fax interfaces per channel), a 10M bps Ethernet LAN interface, and a command port for configuration.

System management is provided through the command port using bundled Windows® software, which provides easy-to-use configuration menus and online Help.

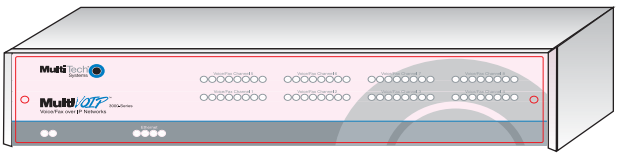


Figure 1. MultiVOIP

Related Documentation

The MultiVOIP Quick Start Guide is intended to be used by a qualified VOIP Administrator (one that has both telephony and networking experience). This Quick Start Guide provides the necessary information for a qualified administrator to unpack, cable, load software, and configure the host and client units for proper operation.

A detailed MultiVOIP User Guide is also provided on the system CD with your unit. This user guide provides in-depth information on the features and functionality of Multi-Tech's MultiVOIP. The User Guide is provided in .pdf format on the system CD and is also available from our Web site.

The User Guide is produced using Adobe Acrobat™. To view or print your copy of a user guide, install Acrobat Reader™ on your computer. The Acrobat Reader is included on your system CD or is available as a free download from Adobe's Web site at http://www.adobe.com.

Launch the Reader and select the .pdf file from the CD. Viewing and printing a user guide from the web also requires that you have the Adobe Acrobat Reader loaded on your system. The MultiVOIP User Guide is also available on Multi-Tech's Web site at http://www.multitech.com

From the MTS homepage, click **Suppor**t | **Manuals** | **MultiVOIP** and choose the appropriate User Guide to download the .pdf file.

Installing Your MultiVOIP

The basic steps of installing your MultiVOIP network involve unpacking the units, connecting the cables, and configuring the units using the included management software (MultiVOIP Configuration). The recommended installation process includes three phases that, when completed, result in a fully functional Voice Over IP network. A general description of each phase is provided below, and detailed instructions follow throughout the rest of this section.

Configure and Install your Host MultiVOIP

As the first step, the VOIP administrator configures the MultiVOIP designated as the “Host” unit. This includes the assignment of a unique LAN IP address, subnet mask, and Gateway IP address, as well as the selection of appropriate channel interface type for each of the Voice/Fax channels. Once all connections have been made, the VOIP administrator configures the unit and builds the Phone Directory Database that will reside in the Host unit.

Configure your Client MultiVOIPs

The next step is to configure the MultiVOIPs designated as “Client” units. The Client units can be another MVP400, a MVP800 unit, MVP200 or a MultiVOIP 100 Series. Again, unique LAN IP addresses, subnet masks, and Gateway IP addresses are assigned, and each Voice/Fax channel is configured for the appropriate channel interface type. When this is done, the Phone Directory Database option is set to Client, and the IP address of the Host MultiVOIP is entered. Once all client units are configured, the process moves on to Phase 3.

Deploy the VOIP Network

The final phase of installation is deployment of the network. Through the first two phases, the VOIP administrator controls configuration, so when the Client MultiVOIPs are sent to their

remote sites, the remote site administrators need only to connect the units to their LAN and telephone equipment. A full Phone Directory Database (supplied by the Host MultiVOIP) will be loaded into their unit within minutes of being connected and powered up.

The final task of the VOIP Administrator is to develop the VOIP Dialing Directory based on the Phone Directory Database and the phone numbers of the interfacing telephone equipment. Now, a VOIP User can call any person on the VOIP network.

Unpacking Your MultiVOIP

Remove all items from the box.

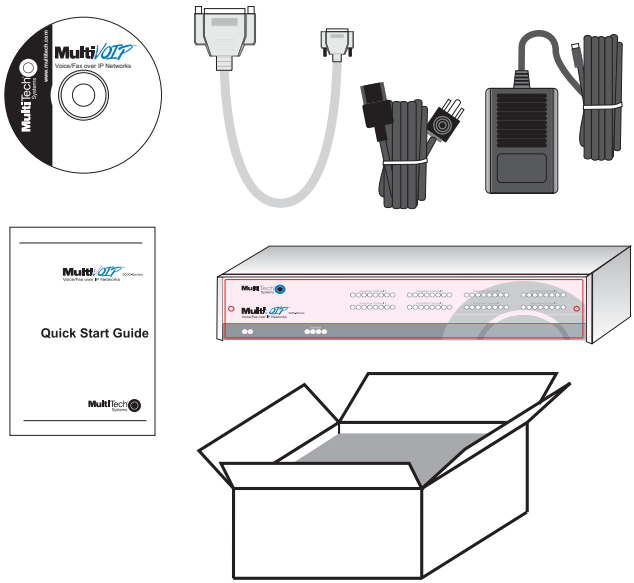


Figure 2. Unpacking

Safety Warnings

Caution

Danger of explosion if battery is incorrectly replaced.

A lithium battery on the voice/fax channel board provides backup power for the time keeping capability. The battery has an estimated life expectancy of ten years.

When the battery starts to weaken, the date and time may be incorrect. If the battery fails, the board must be sent back to Multi-Tech Sytems for battery replacement.

The E&M, FXS, and Ethernet ports are not designed to be connected to a Public Telecommunication Network.

Cabling Your MultiVOIP

Cabling your MultiVOIPinvolves connecting the host MultiVOIP to your LAN and telephone equipment.

If you are connecting any Voice/Fax Channel to an E&M trunk other than type 2, perform the E&M Jumper Block Positioning procedure, which immediately follows the Cabling Procedure, before performing the Cabling Procedure.

1. Connect one end of the power supply to a live AC outlet and connect the other end to the MultiVOIP as shown in Figure 3. The power connector is a 7-pin circular DIN connector.

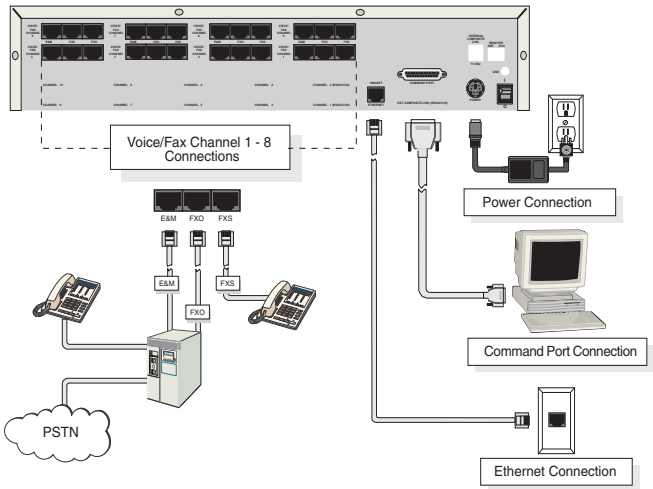


Figure 3. Cable Connections

2. Connect the MultiVOIP to a PC by using the DB-9 to DB-25 cable provided with your unit. Plug the DB-25 end of the cable into the Command port of the MultiVOIP and the other end into the serial port on the PC. See Figure 3.

3. Connect a network cable to the ETHERNET 10BASET connector on the back of the MultiVOIP. Connect the other end of the cable to your network.
4. If you are connecting a station device such as an analog telephone, a fax machine, or a Key Telephone System (KTS) to your MultiVOIP, connect one end of an RJ11 phone cord to the **Voice/Fax Channel 1 FXS** connector on the back of the MultiVOIP and the other end to the station device.

   If you are connecting a PBX extension to your MultiVOIP, connect one end of an RJ11 phone cord to the **Voice/Fax Channel 1 FXO** connector on the back of the MultiVOIP and the other end to the PBX extension.

   If you are connecting an E&M trunk from a telephone switch to your MultiVOIP, connect one end of an RJ45 phone cord to the **Voice/Fax Channel 1 E&M** connector on the back of the MultiVOIP and the other end to the trunk. Refer to the User Guide for E&M pin assignments.

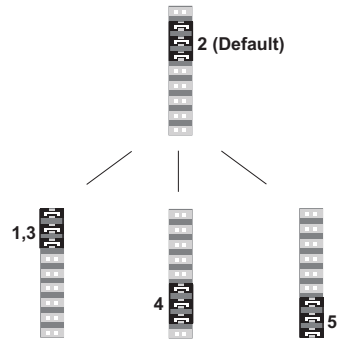
   If you are connecting to an E&M trunk, you need to ensure that the E&M trunk jumper is in the correct position for the E&M type trunk. The default E&M jumper position is E&M type 2. To change the E&M jumper position, perform the E&M jumper block positioning procedure, which immediately follows this procedure.
5. Repeat the above step to connect the remaining telephone equipment to each Voice/Fax Channel on your MultiVOIP.
6. Turn on power to the MultiVOIP by placing the ON/OFF switch on the back panel to the ON position. **Wait** for the BOOT LED on the MultiVOIP to go off before proceeding. This may take a couple minutes.

Proceed to the next section to load the MultiVOIP software.

E&M Jumper Block Positioning Procedure

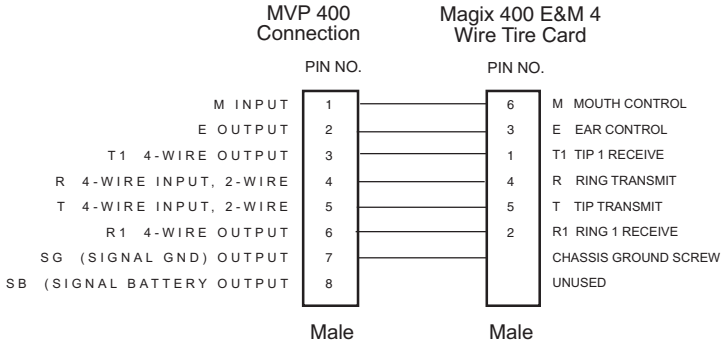
A jumper block exists for each voice/fax channel. The jumper block is to the right of each set of channel jacks. The jumper block contains 8-pairs of pins. The jumper plug fits over three pairs of pins on the jumper block. The E&M type number is labeled on the pc board. The jumper plug needs to be centered on the E&M type number. Perform the following procedure to change E&M jumper position.

1. Ensure that power is removed from the MultiVOIP.
2. Remove the front panel by loosening the two Phillips quarter turn screws.
3. Remove the eight chassis mounting screws and slide the top cover back off the chassis to expose the rear panel.
4. To change a jumper position, lift the jumper plug up off the jumper block and move to the new position, ensuring that the center jumper is centered on the E&M type number.



5. Change the jumper position for each voice/fax channel that is connecting to an E&M trunk that is not a type 2. If you have two voice/fax channel boards in your unit and you need to change the jumpers on the second board, remove the six screws from the top board and disconnect the ribbon cable from the top board.
6. Slide the top cover back on to the chassis and replace the eight retaining screws removed in step 3.
7. Replace the front panel and secure it by tightening the two Phillips quarter turn screws.

8. If you are using a Magix 400 E&M Tie Card, connect the ground pin to the chassis ground screw as shown.



9. Return to the Cabling Procedure.

Configuring Your Host MultiVOIP

The following software loading procedure does not provide every screen or option in the loading process. The assumption is that a technical person with a thorough knowledge of Windows and the software loading process is doing the installation. Additional information on the MultiVOIP software is provided in the User Guide supplied with your MultiVOIP.

If you are installing a MultiVOIP behind a firewall, you need to add the following UDP ports to your firewall.

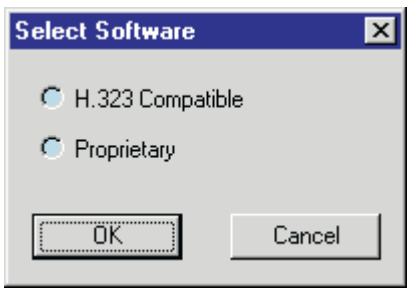
Q.931 Signaling, Ch1[900]	Q.931 Signaling, Ch2 [902]
Q.931 Signaling, Ch3[904]	Q.931 Signaling, Ch4 [906]
Status [5000]	
Ch1 RTP [5004]	Ch1 RTCP [5005]
Ch2 RTP[5006]	Ch2 RTCP [5007]
Ch3 RTP[5008]	Ch3 RTCP [5009]
Ch4 RTP[5010]	Ch4 RTCP [5011]

Refer to your firewall user documentation to enter and open these ports.

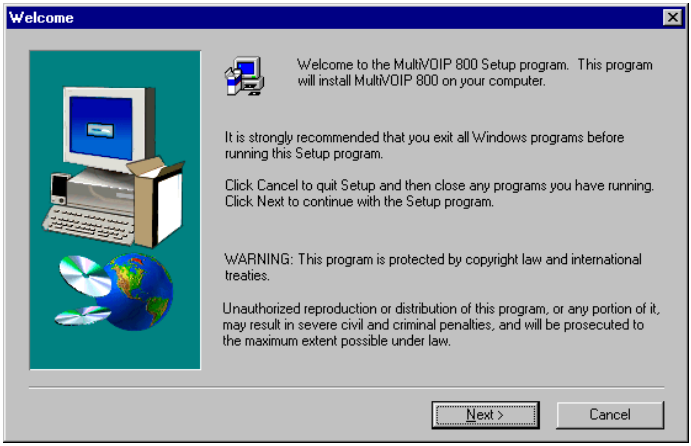
1. Verify that your MultiVOIP400 has been properly cabled and that the power is turned on.
2. Insert the MultiVOIP400 CD into your CD-ROM drive. The CD should start automatically. It may take 10 to 20 seconds for the MultiTech CD installation window to display.

If the Multi-Tech Installation CD window does not display automatically, click **My Computer**, then right click the **CD ROM drive** icon, click **Open**, and then click the **Autorun** icon.

3. When the Multi-Tech Installation CD dialog box displays, click the **Install Software** icon.
4. The Select Software dialog box is displayed. Select **Proprietary** Software option.

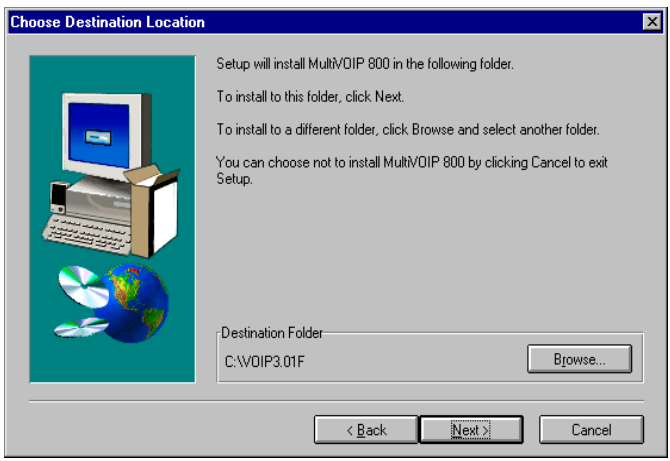


5. The **Welcome** dialog box displays.


Welcome
Welcome to the MultiVOIP 800 Setup program. This program will install MultiVOIP 800 on your computer.
It is strongly recommended that you exit all Windows programs before running this Setup program.
Click Cancel to quit Setup and then close any programs you have running. Click Next to continue with the Setup program.
WARNING: This program is protected by copyright law and international treaties.
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
Next >
Cancel

Click **Next** to continue.

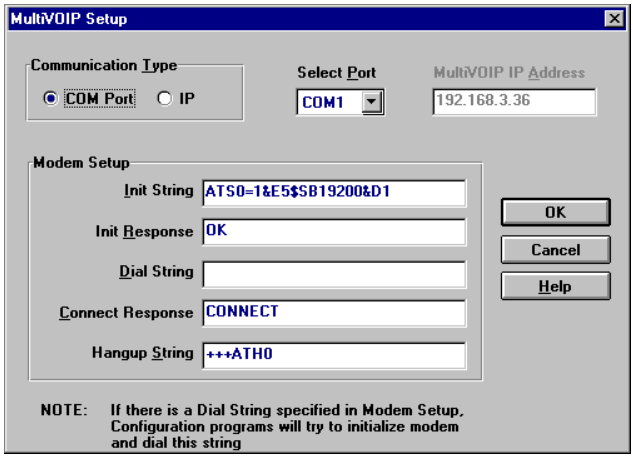
6. Follow the on-screen instructions to install your MultiVOIP software.


Choose Destination Location
Setup will install MultiVOIP 800 in the following folder.
To install to this folder, click Next.
To install to a different folder, click Browse and select another folder.
You can choose not to install MultiVOIP 800 by clicking Cancel to exit Setup.
Destination Folder
C:\VOIP3.01F
Browse...
< Back
Next >
Cancel

You may choose the Destination Location of your MultiVOIP software or you can choose to select the default destination by clicking **Next**.

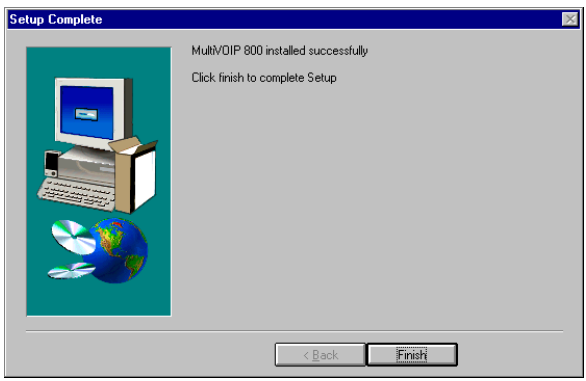
If you click **Browse**, you can choose from several folders. It is recommended to choose the default destination.

7. The following dialog box selects the COM port of your PC connected to the Command port of the MultiVOIP. Select the COM port of your PC from the **Select Port** window.



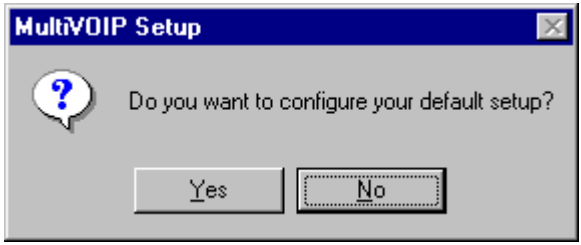
Click **OK** to continue.

8. The **Setup Complete** dialog displays.



Click **Finish** to continue.

9. The following message displays:



Click **No** to continue.

10. From the MultiVOIP Program Group, double click on **Upgrade Software.**

Click **Yes** to continue.

11. The **IP Protocol Default Setup** dialog box displays.

The default **Frame Type** is **TYPE_II**. If this does not match your IP network, change the Frame Type by clicking the drop down box. The Frame Type choices are **TYPE_II** and **SNAP**.

12. In the **Ethernet** group, enter the **IP Address**, **Subnet Mask**, and **Gateway Address**, unique to your IP LAN.

The IP address is your unique LAN IP address, and the Gateway address is the IP address of the device connected to the Internet/Intranet.

Click **OK** when you are finished.

13. The **Channel Setup** dialog box displays. The Channel Setup dialog boxes define the channel interface, voice coder, fax parameters, and regional telephone parameters for each channel.

Configure each channel for the type of interface you are connecting to. **Channel 1** displays by default in the **Select Channel** list. To change the channel number, select the channel number you want to configure from the **Select Channel** list.

14. The **Interface** group defaults to **FXS (Loop Start)**. Select the interface option to correspond to the interface type being connected to the Voice/Fax connector on the back panel of the MultiVOIP.

If you are connecting a station device such as an analog telephone, a fax machine, or a Key Telephone System (KTS) to the Voice/Fax connector on the back of the unit, **FXS (Loop Start)** will most likely be the correct Interface option most of the time .

If the station device uses ground start, then choose the **FXS (Ground Start)** option. Refer to the device's user documentation.

If you are using an extension from your PBX, then choose the **FXO** option. Check with your in-house telephone personnel to verify connection type.

If you are connecting to an E&M trunk on your PBX, then choose **E&M** option.

If the **E&M** interface is selected, the E&M Options group is enabled. Check with your in-house phone personnel to determine if the signaling is **Dial Tone** or **Wink** and if the connection is 2-wire or 4-wire. If Wink signaling is used, then the **Wink Timer** is enabled with a default of 250 milliseconds. The range of the Wink Timer is from 100 to 350 milliseconds. Consult with your local in-house phone personnel for this timer setting. If the **Pass Through** check box is selected, a continuously open E&M voice path is established between two channels to pass voice packets. Available if the **Dial Tone** option is selected and auto-dialing is set up for the two channels that will be doing pass-through. This is useful for Public Address systems.

If you choose an **FXO** or **FXS** interface, the Dialing Options Regeneration group is enabled. Check with your in-house telephone personnel to verify whether your local PBX dial signaling is **Pulse** or **DTMF** (tone). Set the Regeneration option accordingly. In the **Max Dial Digits** box, enter the maximum number of digits allowed when dialing a phone number. The default setting is 5. In the **Inter Digit Time** box, enter the maximum amount of time

in milliseconds that the unit will wait before mapping the dialed digits to an entry in the Phone Directory Database. If too much time elapses between digits and the wrong numbers are mapped, you hear a rapid busy signal. If this happens, hang up and dial again. This option is available for all interface types. In the **Flash Timer** box, enter the time, in milliseconds, for the duration of flash hook signals output on the FXO or FXS interface.

To dedicate a local voice/fax channel to a remote voice/fax channel, (so you will not have to dial the remote channel) select the **Auto Call Enable** check box. Enter the phone number of the remote VOIP in the **Phone Number** box.

For FXO-to-FXO communications, you can enable a specific type of FXO Disconnect: **current loss, tone detection**, **or silence detection**. Check with your in-house phone personnel to verify the preferred type of disconnect to use. For **tone detection**, you can select from the lists either one or two tones that will cause the line to disconnect. The person hanging up a call must then hit the key or keys that will produce those tones. For **silence detection**, select **One Way** or **Two Way**, then set the timer for the number of seconds of silence before disconnect. The default value of 15 seconds may be shorter than desired for your application.

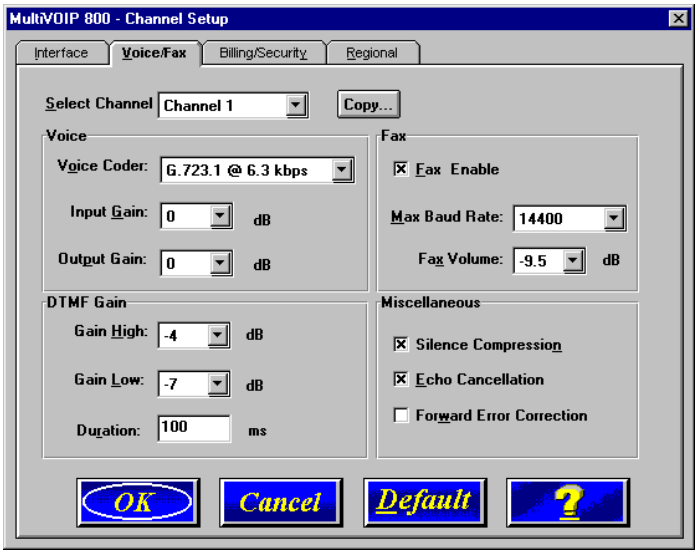
The **FXS Options** control how the selected channel interacts with answering machines. If the **Current Loss** check box is selected, the local VOIP hangs up when the electrical current is lost. The remote VOIPs must also be confirgured for current loss. The **Ring Count** box contains the number of rings before the caller hears a fast Busy signal. If this happens, hang up and try again. The default setting is 8 rings.

Note: After configuring a given channel, you can copy that channel's configuration to any other channel by clicking **Copy**. Everything on the **Interface** tab will be copied to the other channel.

15. Repeat the above steps to configure the interface type for each voice/fax channel.

    The **Voice/Fax** tab displays the parameters for the voice coder, faxing, and DTMF gain.

16. To change the voice coder, select the channel from the **Select Channel** list, then select the new voice coder entry from the **Voice Coder** list.



    If you changed the voice coder, ensure that the same voice coder is used on the voice/fax channel you are calling. Otherwise, you will always get a busy signal.

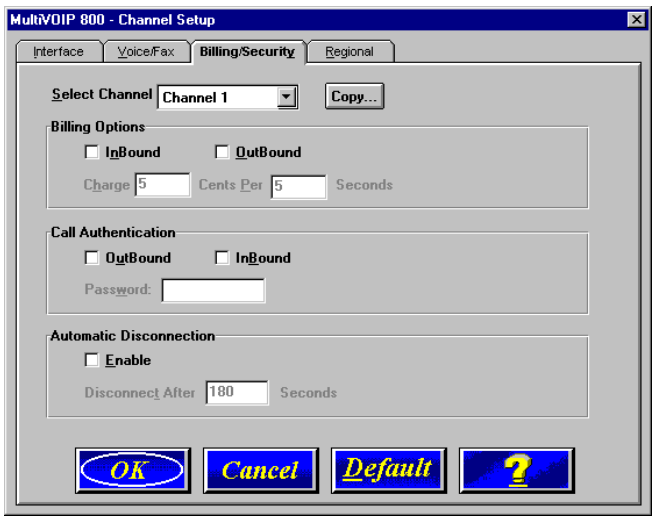
17. If you selected the FXO interface and are using touchtone dialing, you can set up the DTMF gain (or output level in decibels - dB) for the higher and lower frequency groups of the DTMF tone pair. Make your selections from the lists in the **DTMF Gain** group. In the **Duration** box, enter the DTMF tone duration in milliseconds. **100** is entered by default.

Note: Only change the DTMF gain under the direction of Multi-Tech Technical Support.

18. The **Fax** group enables you to send and receive faxes on the selected voice/fax channel. You can select the maximum baud rate for faxes from the list in the **Fax** group. If you do not plan to send or receive faxes on a given voice/fax channel, you can disable faxes in the Fax group.

    Note: After configuring a given channel, you can copy that channel's configuration to any other channel by clicking **Copy**. Everything on the **Voice/Fax** tab will be copied to the other channel.

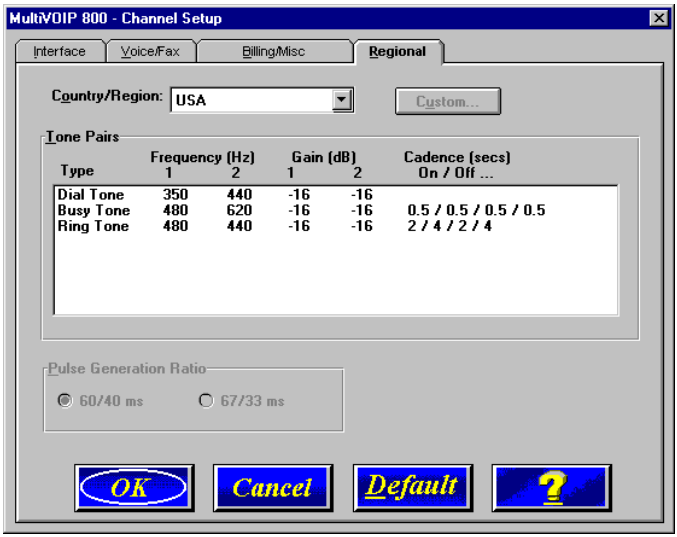
19. The **Billing/Security** tab displays the parameters for automatic disconnection, billing options, and dialing options.



20. You can set up billing options for inbound and outbound calls by selecting them in the **Billing Options** group and then entering the charge in cents per number of seconds.

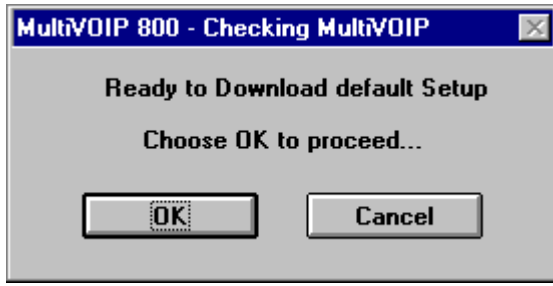
21. The **Call Authentication** option enables password protection for outbound and inbound calls on the selected voice/fax channel. If you enable password protection on inbound or outbound calls, you need to also enter a password of up to 14 numeric characters in the **Password** box.
22. The **Automatic Disconnect** option limits call duration to the number of seconds entered in the **Disconnect After** box. The default value of 180 seconds can be changed to any other value up to 65,535 (roughly 18.2 hours).

    If your country/region is not the default USA, click the **Regional** tab and proceed to step 23. Otherwise, proceed to step 24 to begin building your phone directory database.
23. To change the Tone Pairs on the **Regional** tab, select your specific country or region from the **Country/Region** list.



The **Tone Pairs** group parameters change per your choice. Click **OK** when finished.

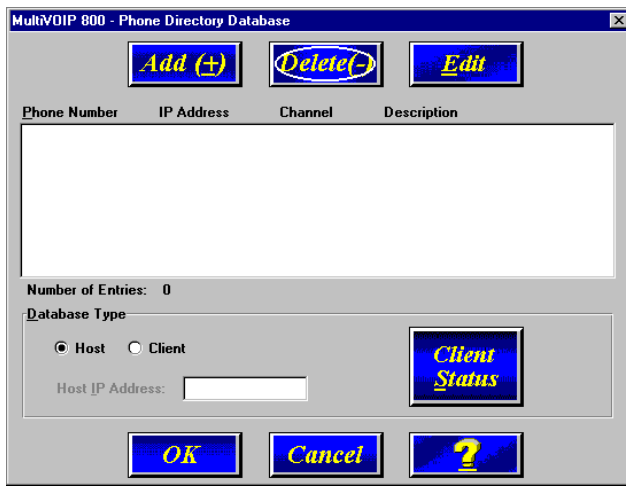
24. The following dialog box is displayed.



Click **OK**. Each component is loaded in succession.

25. From the Program Group, double-click **MultiVOIP Configuration**. Click **Phone Book**. The **Phone Directory Database** dialog box displays. You will build your personalized MultiVOIP Phone Directory in the following steps.

The MultiVOIP configured as a “Host” will contain the host database. The host database has the phone numbers of all the MultiVOIP’s available for communication on an IP network. This database is downloaded to each Client MultiVOIP as it comes online.



Click **Add** to begin building your phone directory database.

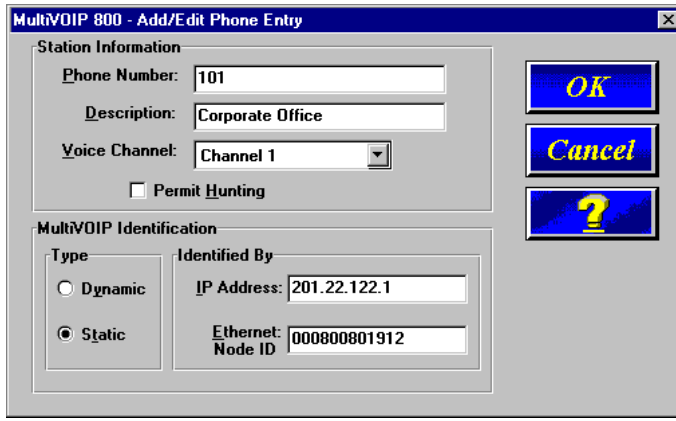
26. The **Add/Edit Phone Entry** dialog displays.

In the **Station Information** group, enter the unique phone number of the local device connected to Channel 1 in the **Phone Number** box (for example phone number 101).

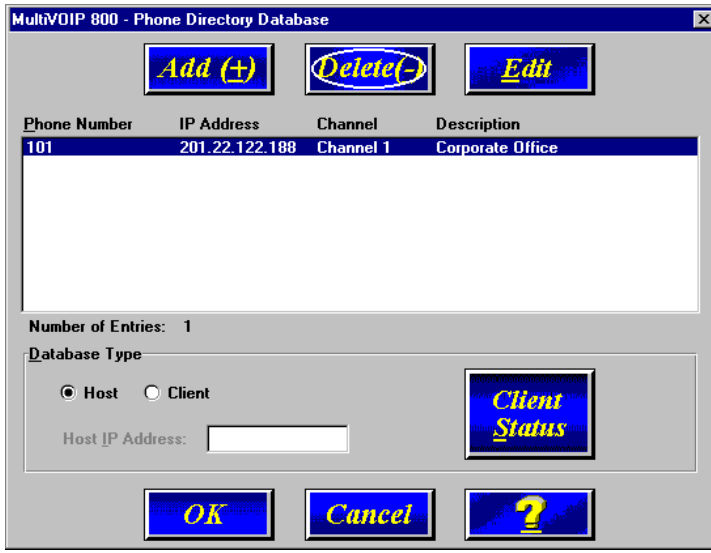
27. The **Description** is optional, but can be useful in associating the channel to the extension. If you want, enter a description of your local phone number. This description identifies the phone number you entered in the previous step.
28. The Permit Hunting option enables the answering unit to roll over to a second channel if the first channel is busy. Click **Permit Hunting** if you want the calls to roll over to a second local voice/fax channel. (Calls will only roll over within an individual MultiVOIP; for example, if all of a MultiVOIPs lines or channels are busy, the next call will not hunt to another MultiVOIP).

    Note: The Host MultiVOIP must have a static IP address that the remote MultiVOIP can reference to obtain a downloaded copy of the host phone directory database.
29. In the **MultiVOIP Identification** group, enter the IP address of the Host MultiVOIP in the **IP Address** box. For

example, 204.22.122.118. Then obtain the 12-digit Node ID# (0008005xxxxx) from the ID plate on the back panel of the MultiVOIP and enter this number in the **Ethernet Node ID** box. If the ID plate is missing or damaged, you can also Telnet to the MultiVOIP and, on the MultiVOIP Telnet Server menu enter **1** to advance to the Main Menu, then enter **3** for System Information where item 1 is the Ethernet Port Address you want to enter in the **Ethernet Node ID** box.

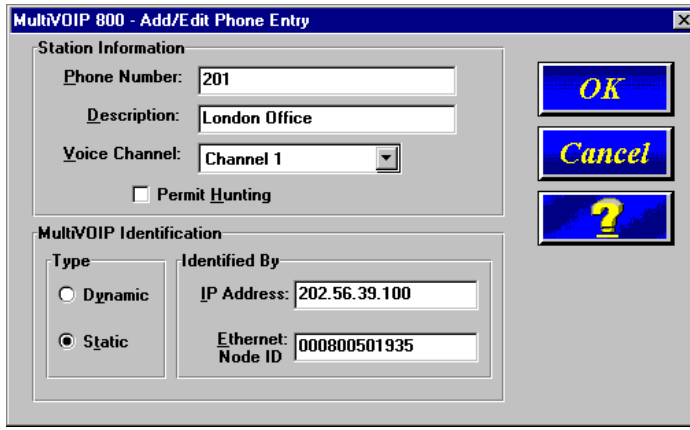


30. Click **OK** and you are returned to the **Phone Directory Database** dialog box, which now includes phone number 101 with its IP address, channel number, and description.

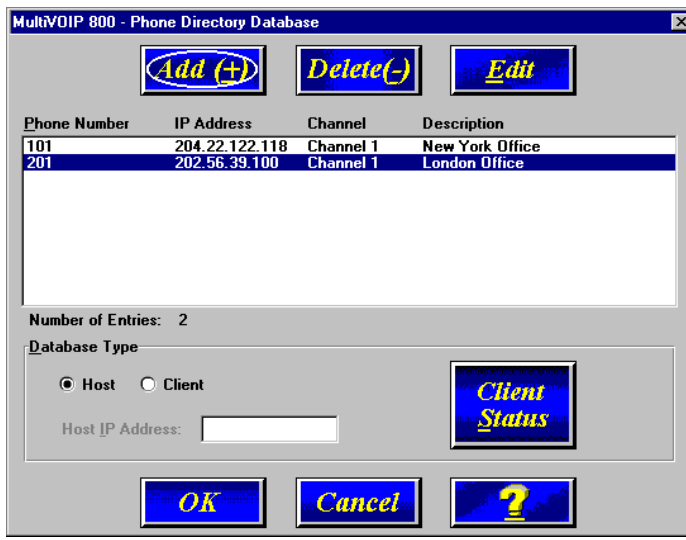


31. Click **Add** and the **Add/Edit Phone Entry** dialog box displays again.
32. Enter the phone number for the remote MultiVOIP in the **Station Information** group **Phone Number** box. For example, 201.
33. Enter a description for the remote MultiVOIP phone number for Channel 1 in the **Description** box.

    Note: If the remote MultiVOIP is located behind a proxy server that uses a dynamically assigned IP address, select **Dynamic** (disabling Static IP Address) and leave the IP Address box blank. The Host MultiVOIP will learn the IP address when it is contacted by the remote MultiVOIP.
34. Enter the IP address of the remote MultiVOIP in the **IP Address** box in the **MultiVOIP Identification** group. For example, 202.56.39.100.



35. Click **OK** and you are returned to the **Phone Directory Database** dialog box, which now includes the second number and related information in the **Phone Number** list.

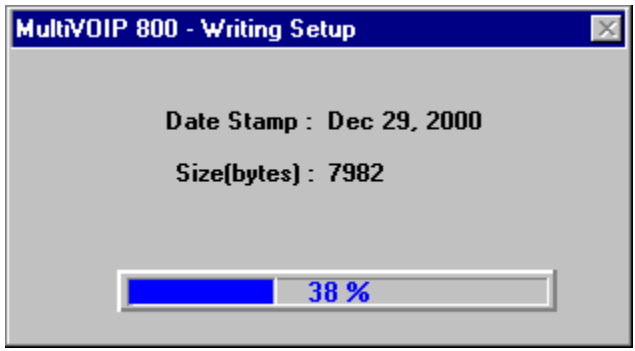


Note: If only Channel 1 is active, you must enter two phone numbers. The first number will be the local

MultiVOIP phone number for Channel 1, and the second number will be the remote MultiVOIP phone number for Channel 1.

36. When you have finished, click **OK.** You are returned to the Main menu, now click on **Download Setup** to write the new configuration to the MultiVOIP.

37. After the setup is written to the MultiVOIP, the unit is rebooted.



38. Verify that the **BTG** LED on the MultiVOIP is off after the download is complete. This may take several minutes as the MultiVOIP reboots.
39. You are returned to the Main menu. At this time, your MulitVOIP is configured. Click **Exit**. Proceed to the next section to configure the client MultiVOIPs.

Configuring Your Client MultiVOIPs

The client MultiVOIPs can be another MVP 400, MVP 800, MVP200, or a MultiVOIP 100-series.

If your client MultiVOIP is an MVP 400, perform the following software loading procedure.

If your client MultiVOIP is an MVP 800, MVP200, or MVP100 series, connect your command port cable and power up the unit according to the cabling procedure in the approrpriate MultiVOIP Quick Start. Then configure the unit as a client per the Software Installation procedures in that Quick Start.

If you are installing a MultiVOIP behind a firewall, you need to add the following UDP ports to your firewall.

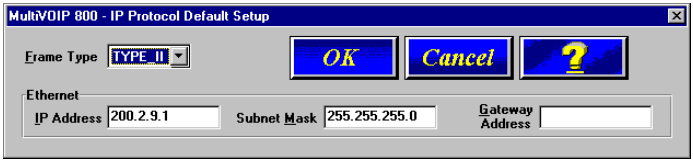
Q.931 Signaling, Ch1[900]	Q.931 Signaling, Ch2 [902]
Q.931 Signaling, Ch3[904]	Q.931 Signaling, Ch4 [906]
Status [5000]	
Ch1 RTP [5004]	Ch1 RTCP [5005]
Ch2 RTP[5006]	Ch2 RTCP [5007]
Ch3 RTP[5008]	Ch3 RTCP [5009]
Ch4 RTP[5010]	Ch4 RTCP [5011]

Refer to your firewall user documentation to enter and open these ports.

1. Disconnect the pc from the command port of the Host MultiVOIP and connect it to the command port on the Client MultiVOIP.
2. From your desktop, click **Start I Programs I MultiVOIP 800 v. 301F I Upgrade Software**. The following dialog box displays.

Click **Yes**.

3. The **IP Protocol Default Setup** dialog box displays.



The default **Frame Type** is **TYPE_II**. If this does not match your IP network, select the Frame Type from the **Frame Type** list. The Frame Type choices are **TYPE_II** and **SNAP**.

4. In the **Ethernet** group, enter the **IP Address** and **IP Mask**. In the **Gateway Address**, enter the gateway IP address for the client unit.

   The IP address is your unique LAN IP address, and the Gateway address is the IP address of the device connected to the Internet/Intranet.

   Click **OK** when you are finished.

5. The **Channel Setup** dialog box displays. The Channel Setup dialog box defines the channel interface, voice coder, fax parameters, and regional telephone parameters for each channel.

Configure each channel for the type of interface you are connecting to. To change the channel number, select the channel you want to configure from the **Select Channel** list .

6. The **Interface** group defaults to **FXS (Loop Start)**. Select the interface option to correspond to the interface type being connected to the Voice/Fax connector on the back panel of the MultiVOIP.

   If you are connecting a station device such as an analog telephone, a fax machine, or a Key Telephone System (KTS) to the Voice/Fax connector on the back of the unit, **FXS (Loop Start)** will likely be the correct Interface option most of the time.

If the station device uses ground start, then choose the **FXS (Ground Start)** option. Refer to the device's user documentation.

If you are using an extension from your PBX, then choose the **FXO** option. Check with your in-house telephone personnel to verify connection type.

If you are connecting to an E&M trunk on your PBX, select the **E&M** option.

If the **E&M** interface is selected, the E&M Options group is enabled. Check with your in-house phone personnel to determine if the signaling is **Dial Tone** or **Wink** and if the connection is 2-wire or 4-wire. If Wink signaling is used, then the **Wink Timer** is enabled with a default of 250 milliseconds. The range of the Wink Timer is from 100 to 350 milliseconds. Consult with your local in-house phone personnel for this timer setting. If the **Pass Through** check box is selected, a continuously open E&M voice path is established between two channels to pass voice packets. Available if the **Dial Tone** option is selected and auto-dialing is set up for the two channels that will be doing pass-through. This is useful for Public Address systems.

If you choose an **FXO** or **FXS** interface, the Dialing Options Regeneration group is enabled. Check with your in-house telephone personnel to verify whether your local PBX dial signaling is **Pulse** or **DTMF** (tone). Set the Regeneration option accordingly. In the **Max Dial Digits** box, enter the maximum number of digits allowed when dialing a phone number. The default setting is 5. In the **Inter Digit Time** box, enter the maximum amount of time in milliseconds that the unit will wait before mapping the dialed digits to an entry in the Phone Directory Database. If too much time elapses between digits and the wrong numbers are mapped, you hear a rapid busy signal. If this happens, hang up and dial again. This option is available

for all interface types. In the **Flash Timer** box, enter the time, in milliseconds, for the duration of flash hook signals output on the FXO or FXS interface.

To dedicate a local voice/fax channel to a remote voice/fax channel, (so you will not have to dial the remote channel) select the **Auto Call Enable** check box. Enter the phone number of the remote VOIP in the **Phone Number** box.

For FXO-to-FXO communications, you can enable a specific type of FXO Disconnect: **current loss, tone detection**, or **silence detection**. Check with your in-house phone personnel to verify the preferred type of disconnect to use. For **tone detection**, you can select from the lists either one or two tones that will cause the line to disconnect. The person hanging up a call must then hit the key or keys that will produce those tones. For **silence detection**, select **One Way** or **Two Way**, then set the timer for the number of seconds of silence before disconnect. The default value of 15 seconds may be shorter than desired for your application.

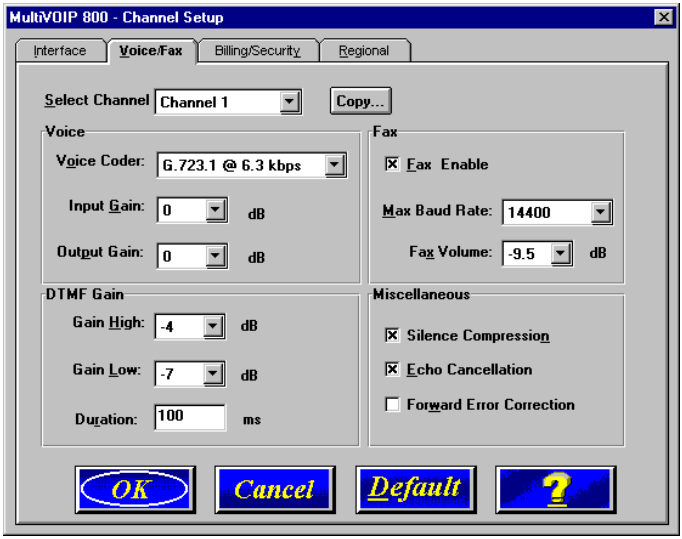
The **FXS Options** control how the selected channel interacts with answering machines. If the **Current Loss** check box is selected, the local VOIP hangs up when the electrical current is lost. The remote VOIPs must also be confirgured for current loss. The **Ring Count** box contains the number of rings before the caller hears a fast Busy signal. If this happens, hang up and try again. The default setting is 8 rings.

Note: After configuring a given channel, you can copy that channel's configuration to any other channel by clicking **Copy**. Everything on the **Interface** tab will be copied to the other channel.

7. Repeat the above steps to configure the interface type for each voice/fax channel.

   The **Voice/Fax** tab displays the parameters for the voice coder, faxing, and DTMF gain.

8. To change the voice coder, select the channel from the **Select Channel** list, then select the new voice coder entry from the **Voice Coder** list.



If you changed the voice coder, ensure that the same voice coder is used on the voice/fax channel you are calling. Otherwise, you will always get a busy signal.

9. If you selected the FXO interface and are using touchtone dialing, you can set up the DTMF gain (or output level in decibels - dB) for the higher and lower frequency groups of the DTMF tone pair. Make your selections from the lists in the **DTMF Gain** group. In the **Duration** box, enter the DTMF tone duration in milliseconds. 100 is entered by default.

   Note: Only change the DTMF gain under the direction of Multi-Tech Technical Support.

10. The **Fax** group enables you to send and receive faxes on the selected voice/fax channel. You can select the maximum baud rate for faxes from the list in the **Fax** group. If you do not plan to send or receive faxes on a given voice/fax channel, you can disable faxes in the Fax group.

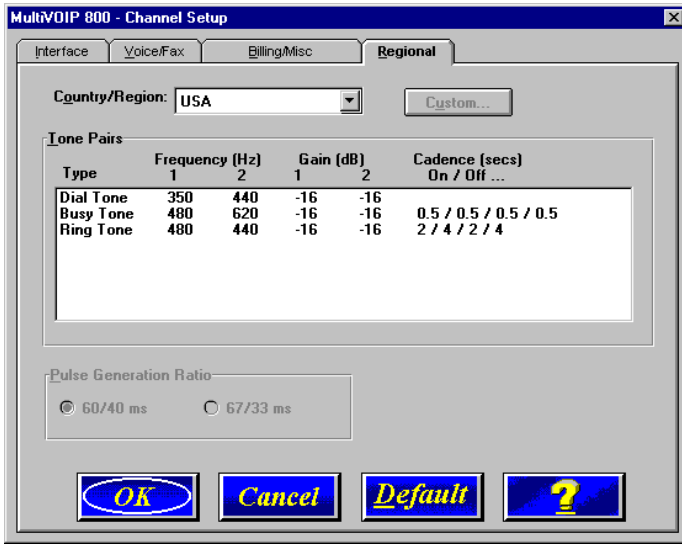
    Note: After configuring a given channel, you can copy that channel's configuration to any other channel by clicking **Copy**. Everything on the **Voice/Fax** tab will be copied to the other channel.

11. The **Billing/Security** tab displays the parameters for automatic disconnection, billing options, and dialing options.

12. You can set up billing options for inbound and outbound calls by selecting them in the **Billing Options** group and then entering the charge in cents per number of seconds.

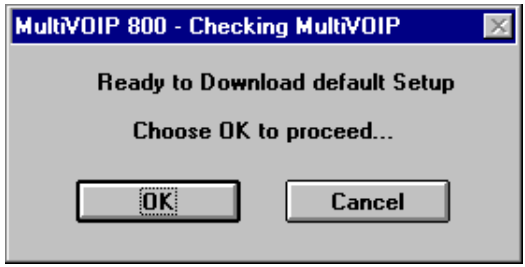
13. The **Call Authentication** option enables password protection for outbound and inbound calls on the selected voice/fax channel. If you enable password protection on inbound or outbound calls, you need to also enter a password of up to 14 numeric characters in the **Password** box.
14. The **Automatic Disconnect** option limits call duration to the number of seconds entered in the **Disconnect After** box. The default value of 180 seconds can be changed to any other value up to 65,535 (roughly 18.2 hours).

    If your country/region is not the default USA, click the **Regional** tab and proceed to step 15.
15. To change the Tone Pairs on the **Regional** tab, select your specific country or region from the **Country/Region** list.



The **Tone Pairs** group parameters change per your selections. Click **OK.**

16. The following dialog box displays.

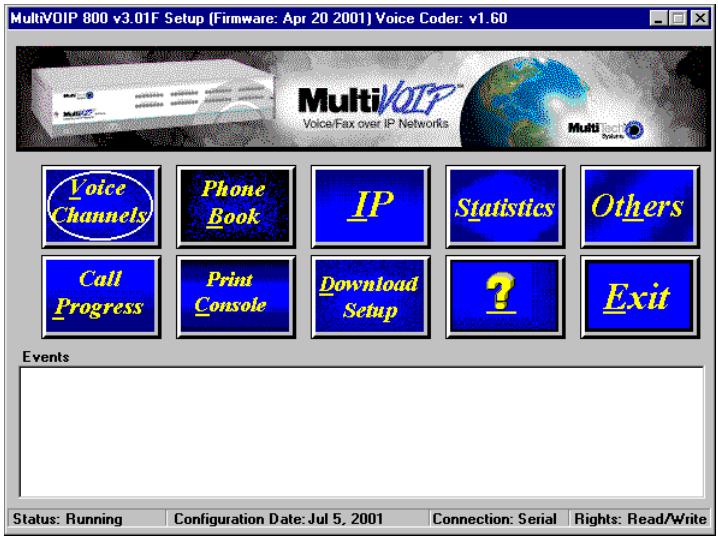


Click **OK.** Each component is loaded in succession.

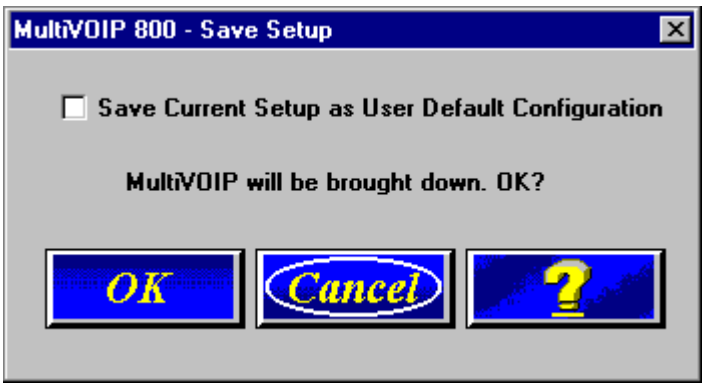
17. From the Program Group, click **MultiVOIP Configuration**. Click **Phone Book.** The **Phone Directory Database** dialog box displays.

18. In the **Database Type** group, click the **Client** option. The **Host IP Address** box becomes active.
19. Enter the IP address of the host MultiVOIP in the **Host IP Address** box.

20. Click **OK** and you are returned to the main menu.



21. Click **Download Setup** to write the new configuration to the client unit. The Save Setup dialog displays.



22. Select the **Save Current Setup as User Default Configuration** check box, then click **OK**. After the setup is written to the MultiVOIP, the unit reboots.

23. Check that the **BTG** LED on the MultiVOIP is off after the download is complete. This may take several minutes as the MultiVOIP reboots.
24. You are returned to the main menu. Your MultiVOIP is operational at this time.

    Repeat this prodedure for each of the client units. When all clients have been configured, proceed with deploying the VOIP network.

Deploying the VOIP Network

Deploying the VOIP network involves the VOIP Administrator developing the VOIP Dialing Directory and deploying the preconfigured client MultiVOIPs to their remote sites. The remote site administrators need only connect power to the preconfigured MultiVOIP, connect it to their Ethernet LAN and predefined telephone equipment, and then wait for the phone directory database to be downloaded.

The client units can be another MVP400, MVP800, MVP200, or a MultiVOIP 100-Series. Therefore, the deployment procedure for the remote site administrator may be more general, so you may need to refer to the Cable Connection Figure in the appropriate Quick Start. Perform the following procedure to deploy your VOIP Network.

VOIP Administrator

1. Establish your VOIP Dialing Directory based on your Phone Directory Database for the numbers to connect the MultiVOIP's to your VOIP network and the telephone extension number you need to connect the Voice/Fax channels. A sample VOIP Dialing Directory is provided below for your consideration and use.

VOIP Dialing Directory		
To call from	Call Process	Dialing Sequence

2. Send the client MultiVOIPs to their remote sites.

Remote Site Administrator

3. Unpack your MultiVOIP.
4. Connect one end of the power supply to a live AC outlet and connect the other end to the **Power** connection on your MultiVOIP.

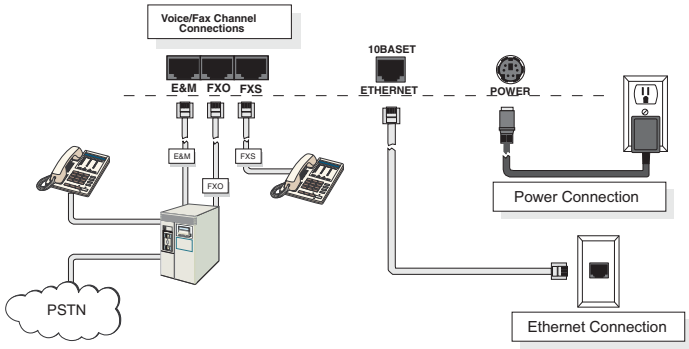


Figure 4. Remote Site Cable Connection

5. Connect a network cable to the **ETHERNET 10BASET** connector on the back of your MultiVOIP.
6. If you are connecting a station device such as an analog telephone, a fax machine, or a Key Telephone System (KTS) to your MultiVOIP, connect one end of an RJ11 phone cord to the **Voice/Fax Channel 1 FXS** connector on the back of the MultiVOIP and the other end to the station device.

   If you are connecting a PBX extension to your MultiVOIP, connect one end of an RJ11 phone cord to the **Voice/Fax Channel 1 FXO** connector on the back of the MultiVOIP and the other end to the PBX extension.

   If you are connecting an E&M trunk from a telephone switch to your MultiVOIP, connect one end of an RJ45 phone cord to the **Voice/Fax Channel 1 E&M** connector on the back of the MultiVOIP and the other end to the

trunk phone jack. Refer to the MultiVOIP User Guide for E&M pin assignments.

7. Repeat the above step to connect the remaining telephone equipment to each Voice/Fax Channel on your MultiVOIP.
8. Turn on power to the MultiVOIP by placing the ON/OFF switch on the back panel to the ON position. Wait for the BOOT LED on the MultiVOIP to go off before proceeding. This may take a couple of minutes.

   At this time your VOIP network should be fully operational. Dial one of the sites in your network using the dialing directory supplied by your Network Administrator.

Limited Warranty

Multi-Tech Systems, Inc., (hereafter "MTS") warrants that its products will be free from defects in material or workmanship for a period of two, five, or ten years (depending on model) from date of purchase, or if proof of purchase is not provided, two, five, or ten years (depending on model) from date of shipment.

MTS MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED.

This warranty does not apply to any products which have been damaged by lightning storms, water, or power surges or which have been neglected, altered, abused, used for a purpose other than the one for which they were manufactured, repaired by Customer or any party without MTS's written authorization, or used in any manner inconsistent with MTS's instructions.

MTS's entire obligation under this warranty shall be limited (at MTS's option) to repair or replacement of any products which prove to be defective within the warranty period or, at MTS's option, issuance of a refund of the purchase price. Defective products must be returned by Customer to MTS's factory — transportation prepaid.

MTS WILL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES, AND UNDER NO CIRCUMSTANCES WILL ITS LIABILITY EXCEED THE PRICE FOR DEFECTIVE PRODUCTS.

Addendum for North American Products

In the event that service is required, products may be shipped, freight prepaid, to our Mounds View, Minnesota, factory:

Multi-Tech Systems, Inc.
2205 Woodale Drive, Mounds View, MN 55112
Attn: Repairs, Serial #_____

A Returned Materials Authorization (RMA) is not required. Return shipping charges (surface) will be paid by MTS.

Please include, inside the shipping box, a description of the problem, a return shipping address (must have street address, not P.O. Box), a telephone number, and if the product is out of warranty, a check or purchase order for repair charges.

Extended two-year overnight replacement agreements are available for selected products. Please refer to our Overnight Replacement Agreement on our web site for details on rates and coverages. Please direct your questions regarding technical matters, product configuration, verification that the product is defective, etc., to our Technical Support department at **1-800-972-2439**.

Please direct your questions regarding repair expediting, receiving, shipping, billing, etc., to our Repair Accounting department at **(800) 328-9717** or **(763) 785-3500**.

Repairs for damages caused by lightning storms, water, power surges, incorrect installation, physical abuse, or user-caused damages are billed on a time-plus-materials basis.

Addendum for International Products

Distributors should contact Amex, Inc., for information about the repairs for your Multi-Tech product.

Amex, Inc.
2724 Summer Street NE Minneapolis, MN 55413
U.S.A. Tel: +(612) 331-3251
Fax: +(612) 331-3180

Please direct your questions regarding technical matters, product configuration, verification that the product is defective, etc., to our Technical Support department nearest you. When calling the U.S., please direct your questions regarding repair expediting, receiving, shipping, billing, etc., to our Repair Accounting department at **+(763) 785-3500** in the U.S.A., or a nearby Multi-Tech office which is listed on the “Multi-Tech

Corporate Offices" sheet in this International Distributor Resource Kit.

Repairs for damages caused by lightning storms, water, power surges, incorrect installation, physical abuse, or user-caused damages are billed on a time-plus-materials basis.

Out of Warranty Repair Costs

Refer to Multi-Tech System's web site at http://www.multitech.com for information about out of warranty repair costs.

Technical Support

Multi-Tech Systems has an excellent staff of technical support personnel available to help you get the most out of your Multi-Tech product. If you have any questions about the operation of this unit, or experience difficulty during installation you can contact Tech Support via the following:

Phone:

(800) 972-2439 (USA and Canada)

(763) 785-3500 (International and local)

Internet:

http://www.multitech.com

Please have your product information available, including model and serial number.

FCC Declaration

NOTE: This equipment has been tested and found to comply with the limits for a **Class A** digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

MultiTech
Systems